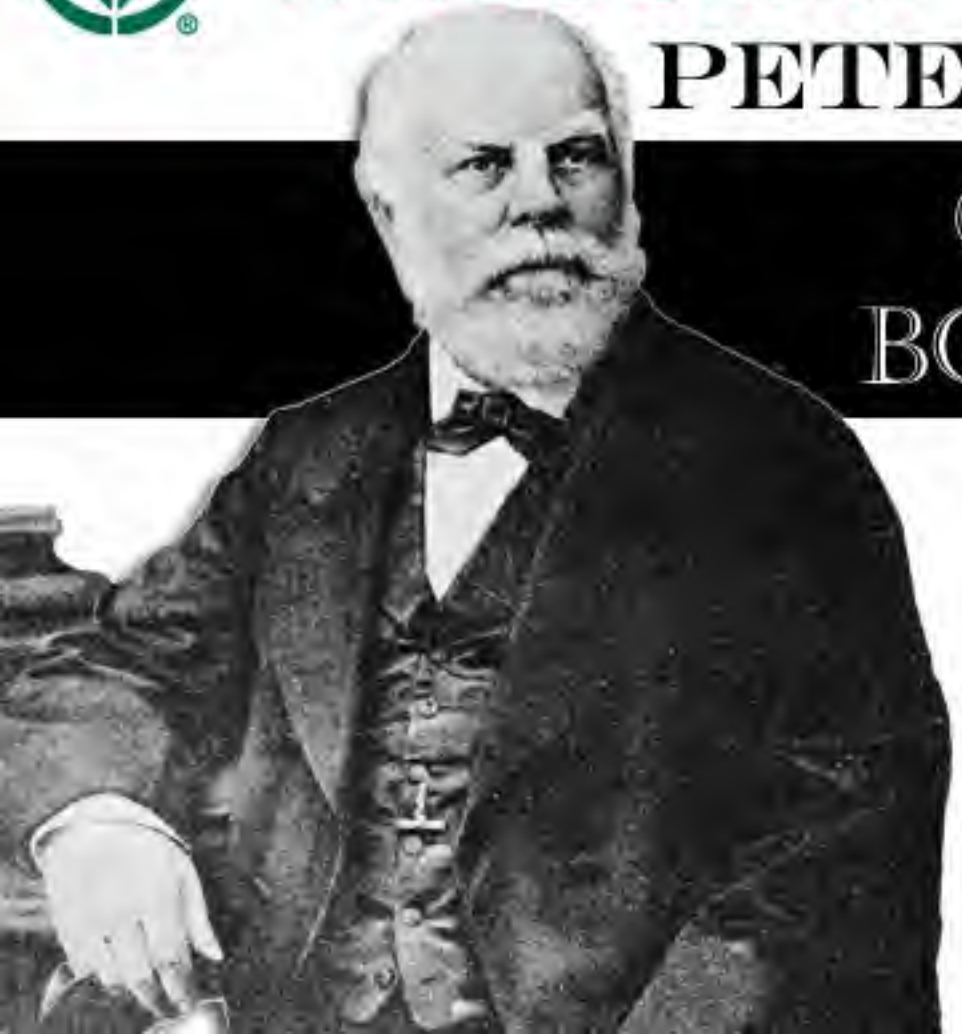
Missouri Botanical Garden
Peter H. Raven Library

George Engelmann Botanical Notebooks



Pagination Note:
Since many of the items lack a specific page number, the page number displayed online refers to the sequentially created number each item was given upon cataloging the materials.

A Parigi

3d. Details of the acid chambers.

4th. Details of the concentrating apparatus.

5th. Details of extra apparatus used for the extraction of copper.

The Drawings, in fine, will include sections and elevations sufficient to show in detail all the important points in the construction and arrangement of the Works.

II. The Estimates will give the cost of the ground, and the cost in detail, of all the buildings, furnaces, acid chambers, tools, etc., ètc. : the cost of each operation in full, and also a detailed statement of the same referred to the ton of raw material, and to the carboy of acid. The interest on the capital invested will be calculated at 10 per cent. and on the Rolling Capital at 7 per cent.

III. The Memoir will give the reasons for choice of raw material, for the adoption of the method employed, and for the location of the Works, with reference to raw material and a market, together with a detailed description of the whole process.

NOTE.—These Memoirs and Projéts must be written on paper 8x10, with a margin of one inch, and be illustrated by drawings made to scale, on paper 24x36 in. in size, and accompanied when possible by specimens.

THE
George Engelmann
LIBRARY.

MINERALOGY.

The studies of the department of Mineralogy continue through two years. In the first year the students are instructed in Crystallography and the use of the Blowpipe. The lectures on Crystallography are illustrated by models, which the students are required to determine under the eye of the Professor. A collection of glass models and of models in wood, illustrating all of the important, actual, and theoretical forms, is always accessible to the students. The exercises in Blowpipe determination are entirely practical. Known mixtures are first given to the student to examine, and, when he is sufficiently familiar with them, unknown mixtures are determed.

In the second year the lectures are illustrated by conferences, where the student is required to determine minerals by their physical and blowpipe characters, and, in the case of the metallic minerals, to determine their constituents. The student thus obtains a thorough knowledge of both Qualitative and Quantitative Blowpipe Analysis. The Mineralogical cabinet contains about 10,000 specimens, which are labelled and open to the public. Besides this there is a collection of about 2,000 specimens, to which the students have unrestricted access.

[This folder enclosed sheets 98-106].

0 1 2 3 4 5 6 7 8 9 10
cm
copyright reserved
MISSOURI BOTANICAL GARDEN

8103

MISSOURI BOTANICAL GARDEN
GEORGE ENGELMANN PAPERS

GEOLOGY.

The course of instruction in this department is as follows:

First Year.

Botany and Zoology as an introduction to Palæontology—lectures throughout the year.

Second Year.

Lithology: Minerals which form rocks and rock masses of the different classes—lectures and practical exercises.

Geology—Cosmical, Physiographic, and Historical—lectures throughout the year.

During the vacation at the close of the second year, students pursuing the course of Geology and Natural History are required to prepare a memoir on one of the following subjects, to be handed in on or before November 1st:

(1.) Report on the Geology of any district visited, embracing: *a.* Topographical features and their cause. *b.* Surface Geology. *c.* Sections of Strata with lithological character, thickness, dip, strike and fossils of each bed. Sketches of rock outcrops. *d.* Suite of specimens of rocks and fossils, rocks $3 \times 4 \times 1$ inches.

(2.) Report on any special formation which may be examined, embracing: *a.* The geographical area of its outcrops. *b.* Its mineral character and origin of the material composing it. *c.* sets and collections of its fossils. *d.* Reading of the history of its deposition.

(3.) Report of any examined deposits of ores or other useful minerals: as *a.* The Magnetic Iron ores of New York and New Jersey, phenomena and history. *b.* The Limonite ores of the Alleghany Belt, character of deposits and age. *c.* The Zinc ores of Franklin or Friedensville. *d.* The Chromic Iron of the Alleghany Belt, where and how it occurs.

Third Year.

Economic Geology: Theory of Mineral Veins; Ores, Deposits and Distribution of Iron, Copper, Lead, Zinc, Gold, Silver, Mercury, and other metals; Graphite, Coal, Lignite, Peat, Asphalt, Petroleum, Salt, Clay, Limestone, Cements, Building and Ornamental Stones, etc.

Palæontology: Systematic review of recent and fossil forms of life—lectures throughout the year.

For graduation in 1872, students in this course will be required to present on or before the 15th of April, a Dissertation on one of the following subjects:

(1.) The Mesozoic Sandstones of New Jersey and the Connecticut Valley; their geological phenomena, history and relations to the associated trap rocks.

0 1 2 3 4 5 6 7 8 9 10
cm
copyright reserved
MISSOURI BOTANICAL GARDEN

Rec'd August 1st
answered 3d

Over

DEPARTMENT OF AGRICULTURE.

Washington, D.C. July 29th 1871

8-10 feet high, 1½-2 inch Nigh
10-14 inches by 2½-4 wide
2½-3½ feet by 1-1⅓ wide
serrations ½ inch apart

3 Plants in same plane 80-100 mm high
leaves 8-14 mm long ½ mm wide
panicles 26-36 mm by 10-13 mm
wide with 15-20 branches
scape 1.4-1.8 mm thick

My Dear Dr

I conclude to trust you
with my photograph of Agave Parryi Engl
which you may not be able to see
conveniently in St Louis. If the negative
is here in Washington I will get another
copy & you can keep this. Whenever
you have to ask you to return it
for the artist had not some definite
object to compare by. (a Man or
Horse). But my impression is that
the specimens are 12 & 15 ft high. 6-8 feet Parry 1868
By a class I think you can detect the
Location or Nomenclature in the leaves
This is taken in Parry. Hence old capsules
You will also see in fam grand
f. baccata. The Mt range on right
is I think slope of San Francisco.

Yours truly

C C Parry.

2.3 : 10:12
12
46
23
27.6

15
12
36
18

1.4 - 1.8

18 : x = 10 : 12
2.4
12
28
14
168

18
96
12
216

0 1 2 3 4 5 6 7 8 9 10
cm
copyright reserved
MISSOURI BOTANICAL GARDEN

MISSOURI BOTANICAL GARDEN
GEORGE ENGELMANN PAPERS

8104

photograph 1/25

1 millimet to the inch

Caucasus prope p.c. plant

1 photograph 10 mm 10 inch

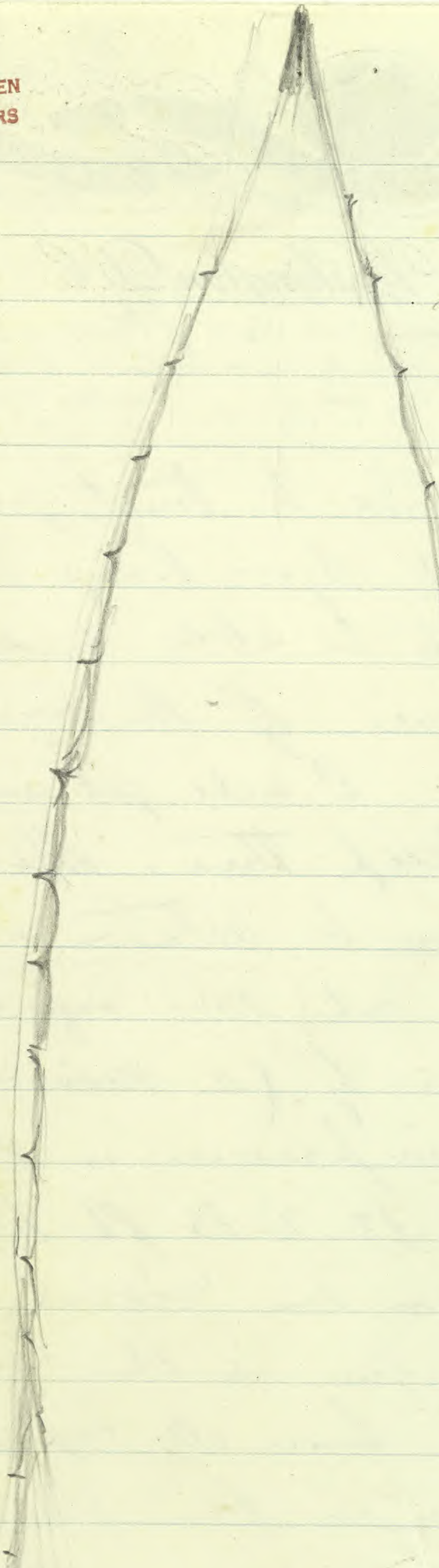
make part of stick 60 "

profile 375 97

Longest branches 6 mm

Thickness of longest base

1.9 & 2 mm



approx. el 50 leaves

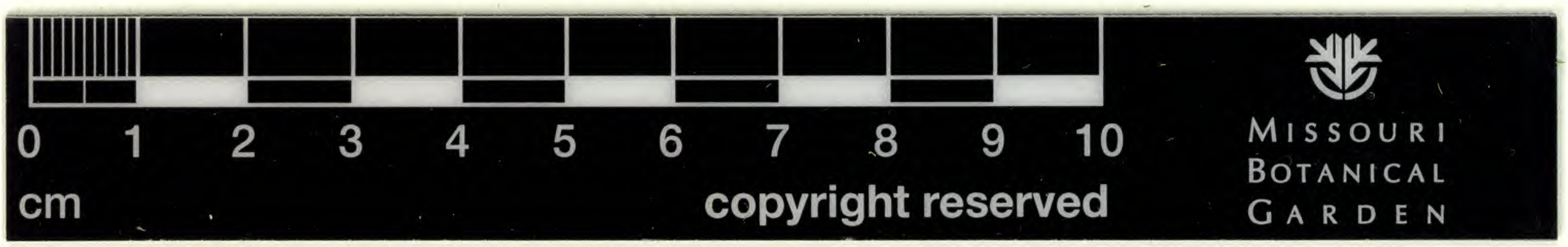
- 5/13 (or perhaps 7/21
9/21)

0 1 2 3 4 5 6 7 8 9 10
cm
copyright reserved
MISSOURI BOTANICAL GARDEN

Agave Parryi. 4

in Blossom in St Louis — I
how can I afford to let it "waste
its sweetness on the desert (St Louis?)
air" If Mrs Putnam had it here
she would make $100,= out of it
for the Academy!
You will at least have some
good photographs — I would like
a large one (not life size)
You have my photograph sketch
KPKR sunny. in for which
you gave a back ground!
Excuse pencil (analine
when pen is out of ink!

Yours
C C Parry



8105

MISSOURI BOTANICAL GARDEN
GEORGE ENGELMANN PAPERS

0 1 2 3 4 5 6 7 8 9 10
cm
copyright reserved
MISSOURI BOTANICAL GARDEN

Dr Parry 1868 says scape 6-8 feet high - good for light canes - leaves 6 inches long, 2-2½ inches wide

Dr Parry in litt. July 17 1868:

The Agave [A Parryi coll. ser. 1867 - distributed in Europe 1869] is exclusively used over all the northern or northwestern sections of Arizona 35th parallel, for making mezcal. It is the underground roasted stem, full of saccharine matter and traversed by tough fibres.

The plant is a miniature of the large Mexican Maguey flowers greenish yellow about an inch in length capsules dry, 1½ inches long. opens by 3 valves & dropping their seed. leaves as described scapes 6 to 8 ft high undulating and 1 to 2 inches in diameter. often used by the surveying party for light canes. I took some notes on this plant in the Mex Bdy. and I think made a rough sketch. The A lechuguilla is quite different. Dr Torrey has very good material in his herb -

Agave Parryi Engelm: Dr Parry July 17 1868

I can soon tell you all I know about the Arizona Agaves. It is the species exclusively used coll'd over all that Section for making Mezcal. being the underground roasted roots. the cellular tissue is thick & charged with a saccharine juice. through which the tough fibrous thread run. in the prepared form it is like half made molasses Candy. in which strings have been dipped. and about as nutricious & wholesome The plant is a miniature of the large Maguey flowers greenish yellow about an inch in length capsules. dry. 1½ inches long. opens by 3 valves & dropping their seed. leaves as described scapes 6 to 8 ft high undulating and 1 to 2 inches in diameter. often used by the surveying party for light canes. I took some notes on this plant in the Mex Bdy. and I think made a rough sketch. The A lechuguilla is quite different. Dr Torrey has very good material in his herb -

0 1 2 3 4 5 6 7 8 9 10 cm
copyright reserved
MISSOURI BOTANICAL GARDEN

8108

MISSOURI BOTANICAL GARDEN
GEORGE ENGELMANN PAPERS

Since I wrote you from [illegible]
in one of the quietest of New England villages 9 miles from
any RR. I have finished up my botanical Report
and list & sent on to the RR Co. They seem so well
pleased that. They have reconsidered their first intention
of not allowing me any pay in making out my report
but will allow me 3 months additional in case I do
up the Meteorology & Geology as well. But as they
do not intend to print yet I shall be in no hurry.
and put it off for cool weather. I am now expecting
daily a parcel of plants that a party man collected
for me in Arizona last Spring. I left some pressing
paper with him & gave him some instructions. and
is the locality where he was located at Hardyville
seemed very promising? I hope to secure some nice
[illegible] RR Co do

8107

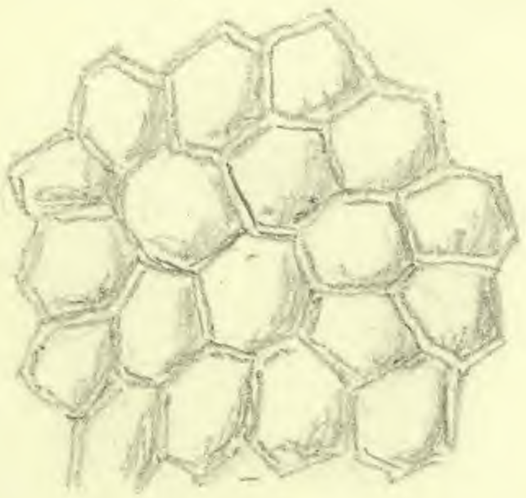
Agave Parryi

May 15 1872

North western Arizona — Dr Parry 1867

(Plants raised from these seeds germinating 4 7

× 1/2



cells slightly elevated
with a ridged convex centre
between the

Agave Parryi

Feby 20 1875

Dr Rothrock

ovary (28 mm) equal to perigon (29 mm)
lobes of perigon oblong linear (20 mm)
twice as long as campanulate tube (9 mm)
filaments inserted in the perigonial lobes (42 mm)
twice as long as perigonial lobes
exserted about 22 mm anther 17–20
fully developed style 70 mm much longer
(by 20 mm) than stamens.
capsule oval, seeds large (8 × 6 mm)

0 1 2 3 4 5 6 7 8 9 10
cm
copyright reserved
MISSOURI BOTANICAL GARDEN

STODDARD PHAR

N. W. Corner Easton and Gar

POOLE & CO

Leitch & Corlies

DRUGGISTS

South-west Corner Fifth and Market Streets

MISSOURI BOTANICAL GARDEN
GEORGE ENGELMANN PAPERS

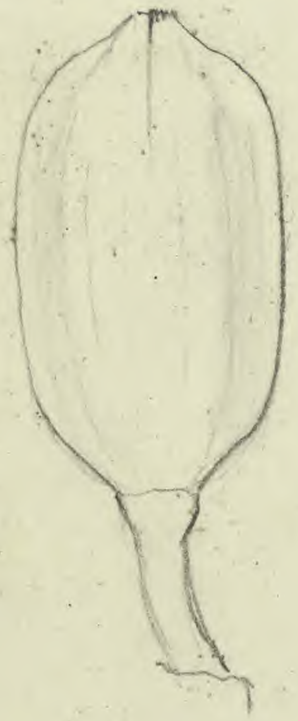
6109

8116

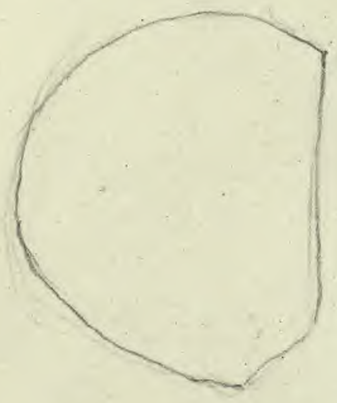
0 cm 1 2 3 4 5 6 7 8 9 10
copyright reserved
MISSOURI BOTANICAL GARDEN

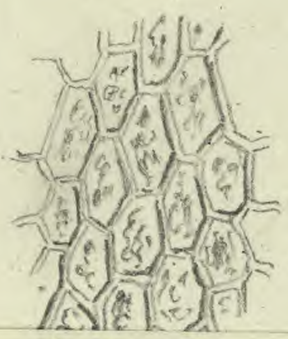
Agave Parryi Sept 17 1872

Ferd. Bischoff, Arizona 1871



seed ×4





Agave Parryi Lingulata Dime 25 1871

in distr. sem 1868

Dr Parry, N.W. Arizona 1867, foot of San Francisco Mts. ft

" leaves 6 inches long, scape 6-8 feet high "

2-2½ wide,

×4

cm 0 1 2 3 4 5 6 7 8 9 10
copyright reserved
MISSOURI BOTANICAL GARDEN

Leitch & Corlie

DRUGGISTS

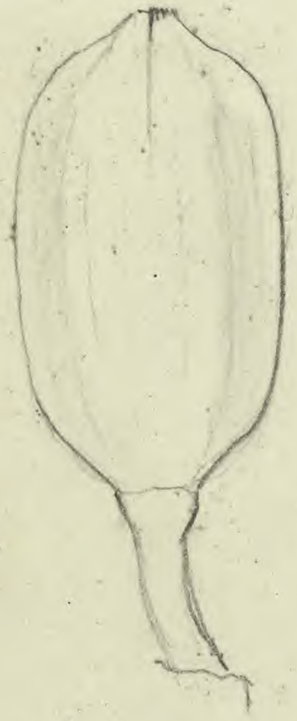
SouthWest Corner Fifth and Market Streets

1118

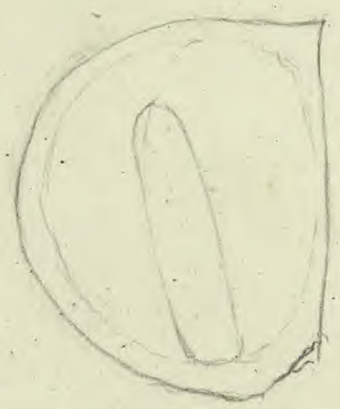
cm 0 1 2 3 4 5 6 7 8 9 10
copyright reserved
MISSOURI BOTANICAL GARDEN

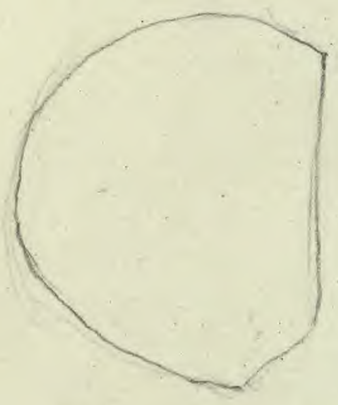
Agave Parryi Sept 17 1872

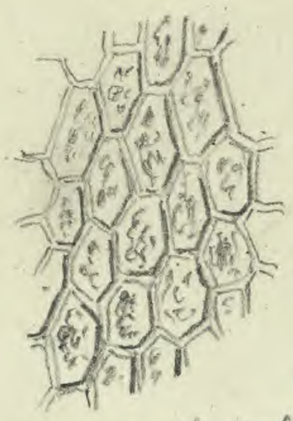
Ferd. Bischoff, Arizona 1871



seed ×4







Surface of seed
× 150

MISSOURI BOTANICAL GARDEN
copyright reserved
cm 0 1 2 3 4 5 6 7 8 9 10

8112

MISSOURI BOTANICAL GARDEN
GEORGE ENGELMANN PAPERS

0 1 2 3 4 5 6 7 8 9 10
cm
copyright reserved
MISSOURI BOTANICAL GARDEN

274 Agave Parryi

Feb 20 1875

Arizona Dr Rothrock

20

22

20

9

28.

anther 20 mm

immature seed
X 4

8 mm long

copyright reserved
MISSOURI BOTANICAL GARDEN

8113

MISSOURI BOTANICAL GARDEN
GEORGE ENGELMANN PAPERS

APOTHECARY ON ST. LOUIS
2348 AND 3500 Olive St.
W. Kirkbride

0 1 2 3 4 5 6 7 8 9 10
cm
copyright reserved
MISSOURI BOTANICAL GARDEN

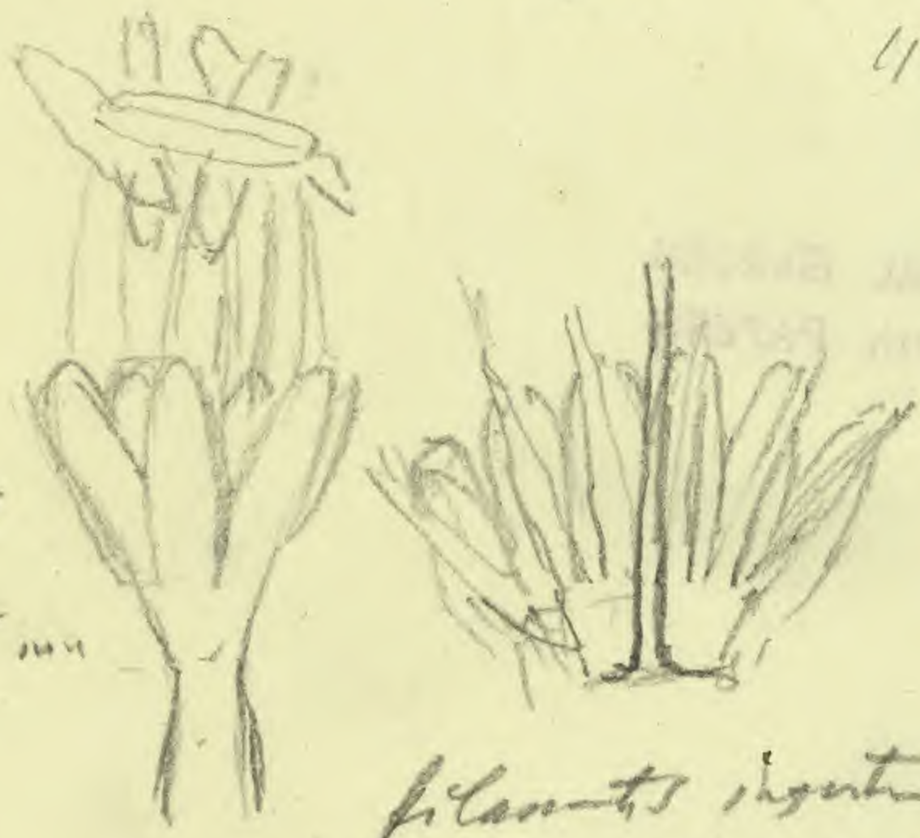
Nov 1873

Corolla - small flowers A Gray
Bigelow & Rock Creek & west Texas
" = Hall Torrey "
Army mss.

Nov 15 1871

" Upper Texas = Mex
Bound. Surv

" half formed capsule with
remains of flowers, one
specimen enclosed " Parry



filaments ½ length
in tips of lobes
the half as long as lobes
stamens at base of filaments

0 1 2 3 4 5 6 7 8 9 10
cm
copyright reserved
MISSOURI BOTANICAL GARDEN

HOELKE BROS.

APOTHECARIES AND C

S. W. Cor. Sixth & Market

ST LOUIS, MO.

MISSOURI BOTANICAL GARDEN
GEORGE ENGELMANN PAPERS

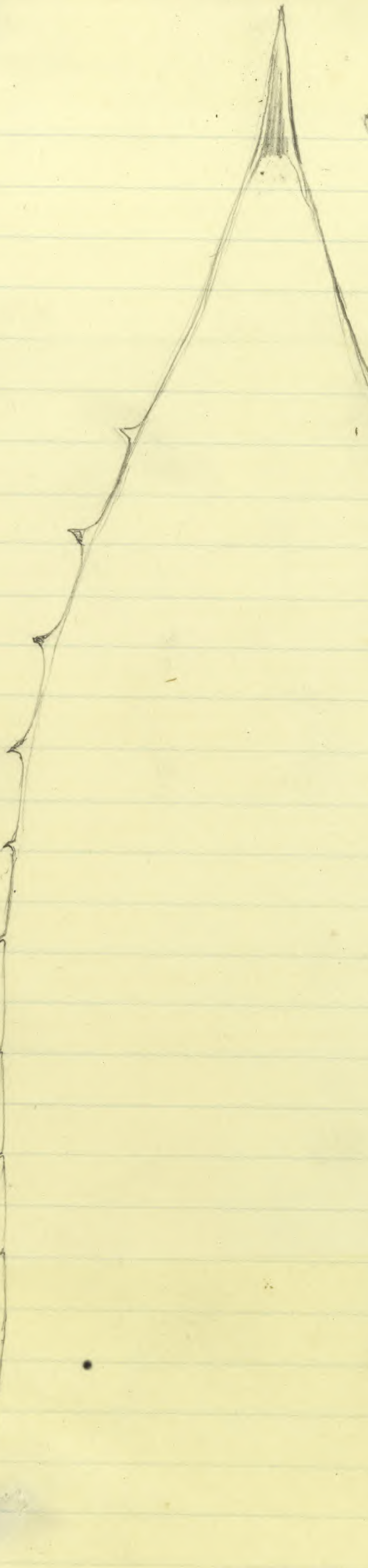
8114

0 cm 1 2 3 4 5 6 7 8 9 10
copyright reserved
MISSOURI BOTANICAL GARDEN

Oct 26 1875

Agave Parryi

Rattlesnake



sect. of spine
subtriangular

white or gray decurrent margin of leaf

terminal spine 1 inch long flattened
on upper side, triangular & section,

marginal spines on upper half
shorter straight, distant about
9-12 lines, on lower half
much smaller and recurved

Upper ones on a dry sketch
or gray margin, —

Leaf examined 10 inches
long 3 or more wide

THE
George Engelmann
LIBRARY

0 1 2 3 4 5 6 7 8 9 10
cm
copyright reserved
MISSOURI BOTANICAL GARDEN

8115

MISSOURI BOTANICAL GARDEN
GEORGE ENGELMANN PAPERS

0 1 2 3 4 5 6 7 8 9 10
cm
copyright reserved
MISSOURI BOTANICAL GARDEN

Agave Parryi

Dec 2d 1877

Fort Bayard SW New Mexico

Dr Bartlett U.S.A. Oct 1877

Soaked remnants of flowers found in the capsules

anthers		10	9½	
stigmas & style	10	10	23	Perigon above ovary 14 lines stamens 4 lines longer style 10 l. longer than perigon.
exserted part of tube	4	11	16	tube twice as long as tube stamens inserted a little below [illegible]
tube	9	10	9	
ovary	14	14	14	Fork Bayard N Mex
tube	5	4½	4	Asth rock Arizona
				Calla or Shaws for Ariz.

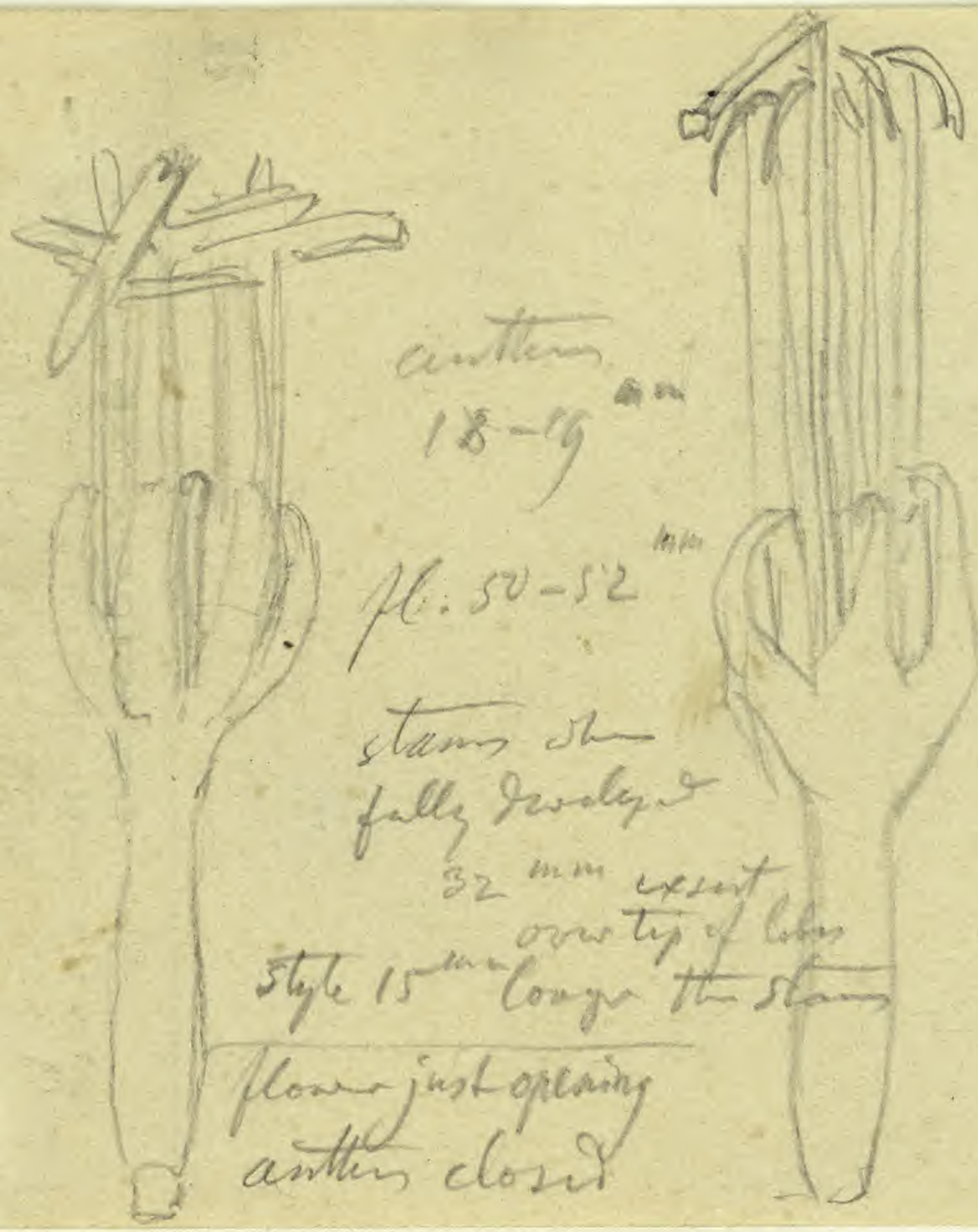
0 1 2 3 4 5 6 7 8 9 10
cm
copyright reserved
MISSOURI BOTANICAL GARDEN

8116

MISSOURI BOTANICAL GARDEN
GEORGE ENGELMANN PAPERS

C. K. JONES & CO
FAMILY . DRUGGISTS,
2800 WASHINGTON AVE.

0 1 2 3 4 5 6 7 8 9 10
cm
copyright reserved
MISSOURI BOTANICAL GARDEN



anthers 18-19 mm

fl. 50-52 mm

stamens shown fully developed

32 mm except ovary tip of lobes

Style 15 mm longer than stamens

flower just opening anthers closed

Agave Parryi Apl 28 1879

Shaws Garden

tube inside 7 mm

lobes 17-18 mm

ovary 28 mm

whole flowering plant 8' high

panicle 2' 4" long

branches 1' ± divaricate

stalk 7 inches circumference at base

leaves in the axills of all bracts, shorter; upper ones longer than flowers

0 1 2 3 4 5 6 7 8 9 10
cm
copyright reserved
MISSOURI BOTANICAL GARDEN

H. W. BARKHOEFER & CO

DRUGGISTS & PHARMACISTS,

2934 Olive Street, S. E. Corner Garrison Avenue,

ST. LOUIS, MO.

℞

8117

MISSOURI BOTANICAL GARDEN
GEORGE ENGELMANN PAPERS

Photo taken from
page 105 of Engelmann
notes on Agave for
photo-engraving
1/29/96

Lodi in Herb. under
A. Parry

0 1 2 3 4 5 6 7 8 9 10
cm
copyright reserved
MISSOURI BOTANICAL GARDEN

8118

MISSOURI BOTANICAL GARDEN
GEORGE ENGELMANN PAPERS

0 1 2 3 4 5 6 7 8 9 10
cm
copyright reserved
MISSOURI BOTANICAL GARDEN

E. L. Greene Aug 12 1877:

The stems of Solanum Col: very many short leaves thick and rigid — stoloniferous — rose high If one walks under it and touches the plant or it is windy one is apt to have a shower of honey on him. —

0 1 2 3 4 5 6 7 8 9 10
cm
copyright reserved
MISSOURI BOTANICAL GARDEN

MISSOURI BOTANICAL GARDEN
GEORGE ENGELMANN PAPERS

8119

Dear Dr. Engelmann

St. Louis July 19 1872

0 1 2 3 4 5 6 7 8 9 10
cm
copyright reserved
MISSOURI BOTANICAL GARDEN

Agave crenata Jacobi Hamb. Jard
& Blum Jeitg. April 1867. p. 229
Syn. A. Americana B. ? latifolia
Torrey in Mex Bound Rep. W. 213
A. Mescal C. Koch Wochenschr.
1865. p. 94
A. heterodon Host Parin
Copper mts on the Gila (Emory) Rock Creek
Texas (Bigelow) [Localities given by Torrey]
Jacobi describes the plant, which,
he says, is cultivated in many Gardens
but does not say where obtained.
He does not know flowers or fruit
a short note which he copies
from Torrey.
Leaves (as Torrey says) over 1 foot long
4 or 5 inches wide "forming a cone"
stalk 10 feet high; flowers 1/3 of a foot
cultic. A Americana — Copper 1 1/2 inch
long, half as wide — obtuse

I cannot discover why Jacobi quotes
Torrey's plate as his crenata
our leaves are not "profunde crenato-grandi
dentata"

MISSOURI BOTANICAL GARDEN
GEORGE ENGELMANN PAPERS

8120

Herr Dr. Engelmann!

Haben Sie die Güte, u. dafür
sorgen wollen, ob der Herr, welch
Sie besucht wünscht, gleich eine
Zeitlang Sie aufsuchen wollen
soll, weil dort noch Fremde
da wohnt, wenn sie nicht wäre
ihre sind Empfehlung nehmen Sie,
bei der Rückkehr schicken die
Herren Ihnen Ausgaben zu
haben, u. das mir Ihre Gründ-
lich besorgt wurden.

Mit Hochachtung Ihr

W. Bernhardi.

0 1 2 3 4 5 6 7 8 9 10
cm
copyright reserved
MISSOURI BOTANICAL GARDEN

Agave Conesii ? ?

Feb 22 1867

= Lechuguilla ?

Date Creek, Arizona

Cones & Palmer
No 253
Agave ? Flowers June 6 1867

perigonium albidum

nat size

anthers 7‴ long
1/4 mm

pedicellis brevibus
fasciculatis

but apparently white
flower of the Plant of the Colorado
Desert — the same ?
Locality of Parry !

ovarium cylindricum
perigonio longius
perigonium fere ad basin
6-partitum, lobis oblongo-lanceolatis
obtusis, erecto-patulis; staminibus
faucem inserta exserta
style
ovary-longer

0 1 2 3 4 5 6 7 8 9 10
cm
copyright reserved
MISSOURI BOTANICAL GARDEN

8121

MISSOURI BOTANICAL GARDEN
GEORGE ENGELMANN PAPERS

May 15 1872

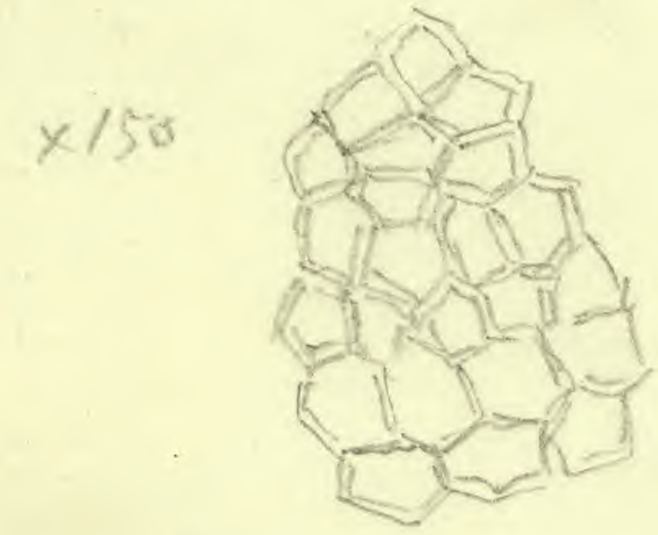
Agave

Emory Oct 19 1846 = Fk Torrey

x150

seed somewhat thin,
cells scarcely convex

= Parryi



x150

seed thin, with
flat polygonal cells

0 1 2 3 4 5 6 7 8 9 10
cm
copyright reserved
MISSOURI BOTANICAL GARDEN

8122

MISSOURI BOTANICAL GARDEN
GEORGE ENGELMANN PAPERS

Smith & Emlie
DRUGGISTS
Apothecaries Hall
Main and Fifth Market Streets
Louisville

0 1 2 3 4 5 6 7 8 9 10
cm
copyright reserved
MISSOURI BOTANICAL GARDEN

Coues & Palmer 253, Date Creek

~~[Emory, Vallecitos ?]~~

seems to be a small flowered form of Okenia

Perry? —

perigon 17–20 mm long, lobes 3–4 times as

long as tube —

except part of filaments not as long

as lobes —

Anthers abt 14–15 mm long

0 1 2 3 4 5 6 7 8 9 10
cm
copyright reserved
MISSOURI BOTANICAL GARDEN

Ernest Fasold,

PHARMACEUTIST,

N. W. Cor. Park Ave. & 10th (or South) St.,

ST. LOUIS.

8123

0 1 2 3 4 5 6 7 8 9 10
cm
copyright reserved
MISSOURI BOTANICAL GARDEN

July 1871

Agave Consessii Engl.

folia ?

scapo ? foliis dense aggregatis brevissimis

pentagonis quam ovarium paulo brevior (8-9 lin. long.)
per ad basin 6-partito, lobis oblongo-lanceolatis
filamentis tubi brevi campanulati faucem occludentibus cum
stylo acquilongo brevius exsertis, antheris ? mm. long.
lobis fere aequilongis. acquilongis.

Capsula ?

8124

MISSOURI BOTANICAL GARDEN
GEORGE ENGELMANN PAPERS

M. W. ALEXANDER,

South-east corner Fourth and Market Streets,

ST. LOUIS.

0 1 2 3 4 5 6 7 8 9 10
cm
copyright reserved
MISSOURI BOTANICAL GARDEN